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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/516,623	12/03/2004	David John Law	608-445	5306
23117	7590	10/26/2006	EXAMINER	
NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203			ZUCKER, PAUL A	
			ART UNIT	PAPER NUMBER

1621

DATE MAILED: 10/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/516,623

Applicant(s)

LAW ET AL.

Examiner

Paul A. Zucker

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21-42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Current Status

1. This action is responsive to Applicants' amendment of 2 October 2006.
2. Receipt and entry of Applicants' amendment is acknowledged.
3. Applicants' addition of new claims 41 and 42 is acknowledged.
4. Claims 21-42 are pending.
5. The rejection under 35 USC § 102 set forth in paragraph 5 of the previous Office Action mailed 2 October 2006 is withdrawn in response to Applicants' amendments.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35

U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

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4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
6. Claims 21-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ditzel et al (US 5,877,348 03-1999).

Instantly claimed is a process for the production of acetic acid comprising carbonylating methanol and/or a reactive derivative thereof with carbon monoxide in a carbonylation reaction zone containing a liquid reaction composition comprising an iridium carbonylation catalyst, methyl iodide co-catalyst, a finite concentration of water, acetic acid, methyl acetate, at least one promoter selected from ruthenium, osmium and rhenium and a stabilizing compound selected from the group consisting of alkali metal iodides, alkaline earth metal iodides, metal complexes capable of generating I^- , salts capable of generating I^- , and mixtures of two or more thereof wherein the molar ratio of promoter to iridium is greater than 2 :1, and the molar ratio of stabilizing compound to iridium is in the range greater than 0 :1 to 5:1.

Ditzel teaches (Columns 11 and 12, lines 36-56, Table 5, entries 4,5,8-10) a process for the carbonylation of methanol in the presence of an iridium catalyst, iodide salt and/or source (including alkali and alkaline earth metal iodides) in the presence of an ruthenium promoter present in a ratio of 2/1 with respect to the iridium catalyst. Ditzel additionally teaches (Column 5, lines 37-39) ruthenium promoter to iridium catalyst ratios of greater than 5:1 that encompasses the instantly claimed ranges. Ditzel teaches (Column 6, lines 7-26) the establishment of a recycle stream, which

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contains iridium catalyst and stabilizer, after distillation of acetic acid and, presumably, carbon monoxide any other non-condensable gases. The stabilizer, as well as other components, is introduced into the reaction by the recycle stream. Ditzel teaches (Column 6, lines 7-26) iodide stabilizer in the range 0.1:1 to 1:1 with respect to iridium. Ditzel teaches (Figure 5) in which all of the claim limitations are met for the Ir/Ru ratio of 1:5 with lithium (and, therefore, iodide) ratios up to 3:1.

The difference between the process taught by Ditzel and that instantly claimed is that Ditzel specifically exemplifies the reaction with a promoter-iridium ratio of 5:1 (See Fig 5) using a lithium stabilizer compound but does not exemplify such reactions using a promoter- iridium ratio of greater than 5:1 as instantly claimed.

Ditzel, however, specifically suggests (Column 5, lines 37-39) that a promoter-iridium ratio of greater than 5:1 may be employed. Further, one of ordinary skill of the art, upon inspection of the graph presented in Fig.5, would realize that use of higher promoter- iridium ratios leader to higher rates of reaction and therefore higher rates of throughput. One of ordinary skill in the art would therefore have been motivate to use a higher promoter- iridium ratio to achieve a more effective industrial process. There would have been a reasonable expectation for success based upon Ditzel's specific suggestion of this modification of his process.

Thus the instantly claimed process would have been obvious to one of ordinary skill in the art.

Examiner's Response to Applicant's Remarks with Regard to This Rejection

7. Applicants have presented several arguments in anticipation of this rejection. The

Examiner addresses these below:

- a. Applicants argue that the present invention seeks to solve a different problem than that of Ditzel. In response to applicant's argument that the present invention seeks to minimize the precipitation of promoter while Ditzel seeks to maximize the carbonylation rate at low water content, the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).
- b. Applicants further argue that, in comparison with Experiment B, it is a surprising result that no precipitation is observed using the claimed ratios of catalyst components and stabilizer. The Examiner responds as follows:
 - i. Experiment B is not representative of the prior art process since it does not employ any stabilizer while the process of Ditzel clearly does (See Fig. 5). Applicants' comparison is therefore not germane to the issues raised by rejection above.
 - ii. The stabilizing effect of iodide on a variety of Group VIII carbonylation catalysts is well known in the art. It is therefore not surprising that the presence of iodide ion suppresses precipitation.

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Applicant's arguments filed 2 October 2006 have been fully considered but they are not persuasive for the reasons set forth above.


Conclusion

8. Claims 21-42 are pending. Claims 21-42 are rejected.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul A. Zucker whose telephone number is 571-272-0650. The examiner can normally be reached on Monday-Friday 5:30-2:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann R. Richter can be reached on 571-272-0646. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


PAULA A. ZUCKER, PH.D.
PRIMARY EXAMINER
